911

Nova Scotia **MT&T**

Nova Scotia Emergency Measures Organization

Review of 911 Call Taking & Call Dispatch Procedures Within Nova Scotia

Final Report

DMR

An Amdahl Company

**Collins Management
Consulting & Research**

Table of Contents

Executive Summary

DMR was retained by the Minister responsible for the Emergency Measures Act for the purpose of evaluating the 911 Call Taking and Call Dispatch Procedures.

The objectives of this review were to:

* Obtain an outside and objective view of the 911 call taking and call dispatch system;

* Fulfill the priority goal of the Minister responsible for EMO to review the 911 call taking and call dispatch procedures; and

* Provide data and analysis useful for conducting further improvement efforts by the EMO.

Full View (both external and internal perspectives)

This study investigated the internal (operational) and external (public) views of the 911 call taking and call dispatching procedures in order to validate the overall satisfaction and effectiveness of the 911 emergency system procedures. This approach provided a balanced review of the system, allowing us to draw linkages between how the system performs and how satisfied both users and providers are. In this study, we surveyed nearly 1200 recent users, conducted 17 focus groups with emergency responder agencies and interviewed Public Safety Answering Point (PSAP) managers and representative call takers and dispatchers.

The full view indicates that the 911 call taking and call dispatching procedures have been highly successful in meeting the emergency needs and expectations of recent users. User and responder satisfaction was measured as very high. We conclude that the 911 call taking and call dispatch procedures are therefore highly effective in facilitating quick and effective emergency response for Nova Scotians.

For purposes of continuous improvement of the emergency response system we have also provided the results of our investigation on the internal operation. These conclusions should help to identify opportunities and plan for future improvements. In this regard, this reveals that there are minor operational inefficiencies and ineffectiveness aspects of the emergency response system, largely due to the absence of a single accountable organization overseeing the entire system.

External View

Callers to 911

* The telephone survey found a high degree of satisfaction amongst those who have used the 911 call taking and handing service. 93 percent of those interviewed reported that the 911 system met their expectations.

* Callers were readily able to identify the main strengths of the 911 system — that 911 is a single, easy to remember number for accessing emergency services throughout Nova Scotia.

- ◆ There were very high satisfaction ratings to four separate indicators —

  - the speed with which their call was answered: 85.3 percent were "very satisfied"

  - the knowledge and expertise of the 911 call taker: 82.9 percent were "very satisfied"

  - the sensitivity of the call taker to their situation: 81.4 percent were "very satisfied"

  - the courtesy of the 911 call taker: 87.5 percent were "very satisfied".

- ◆ 88 percent of callers surveyed were "very confident" in the ability of 911 to meet their emergency needs, should they have the need to call 911 again.

- ◆ Based on their experiences with 911, 97 percent of those interviewed would recommend other Nova Scotians call 911 in an emergency.

- ◆ Survey participants identified very few instances of *direct* problems with 911. The major difficulties reported by callers are related to the interaction of the 911 service with the dispatch and delivery of the emergency service.

- ◆ 78 percent of those interviewed incorrectly associate 911 with the complete range of emergency response services, from taking an emergency call to notifying the appropriate emergency agency and actually providing the emergency response. This perception has a direct linkage to the communication and coordination, and public education elements of the review.

- ◆ Civic addressing issues were related to problems with the 911 database and the delivery of emergency response services by agencies. About 18 percent of those interviewed believe their civic address is not visible; another 12 percent were not certain about the visibility of their address. This finding points to a clear need for public education and signage standards for civic addressing.

Emergency Responders

- ◆ Emergency response agencies clearly know the difference between 911 and the overall emergency response system.

- ◆ From a "strengths" perspective, focus group participants see 911 as *a single, easy to remember emergency number that helps the caller access whatever emergency services are required no matter where the caller is located in the province or what time of day the emergency services are required.*

- ◆ Emergency responders see a number of positive benefits to the 911 system and believe it is an important and indispensable asset to emergency response agencies in Nova Scotia. Emergency responders generally agree that the 911 service has improved emergency response in Nova Scotia.

- ◆ There have been growing pains in the first year of operation of the 911 service. Participants in the 17 focus groups held around the province raised issues concentrated on communication and coordination, civic addressing, training, cell phones and public education. These are similar to those identified by the 911 Advisory Group.

- Some 911 strengths may be weaknesses in certain locations or under certain circumstances. The three most common were the role of 911 in civic addressing, abandoned and no voice calls, and the ability of emergency responders to communicate with other service providers during an emergency situation.

- These issues typically have a geographic and agency specific character. Some issues such as road naming have generally been resolved over the past year in most locations. Others, such as the posting of addresses, still require work.

- While many of the dispatch and delivery issues raised may be viewed as outside the scope of the narrowly defined 911 call taking and handling service, in our view, there is a causal linkage between these issues and the 911 call taking system.

The views of these focus group participants confirm and validate the findings from the operational assessment. The Operational Assessment section of the report examines these in more detail.

Internal View

The emergency response operation may be thought of as a 3-step process including 911 call taking, emergency dispatch and emergency response. This internal assessment focused on the 911 call taking operation with consideration given to the downstream impacts of its efficiency and effectiveness on the emergency dispatch and emergency response operations. The assessment conclusions are described under the areas of management, organization, process, and information systems within the conclusion section of this report. These conclusions are summarized here for executive review.

The observations from the management, organizational, processes and systems review have led us to conclude that:

- There is no universally employed CAD system throughout the province that is fully compatible with the 911 systems and other dispatch systems;
- There is no analysis of data / performance history consistently applied across all PSAPs which would otherwise improve overall understanding of how improvement in the operation may be realized;
- There are few qualitative performance measures thus making it difficult to determine how well the operation is functioning today in terms of effectiveness for internal stakeholders;
- There are overlapping roles / responsibilities between call takers and dispatchers leading to organizational ineffectiveness and inefficiencies;
- The linkages of 911 / police / fire / PSAPs / others are diverse and thereby difficult to manage effectively;
- Varying standards between call taking and dispatch coordination lead to inconsistent service levels across the province; and
- The large use of the preexisting 7-digit numbers still used in rural NS has minimized the acceptance and effectiveness of using the 911 process.

1.0   Introduction

1.1   Study Objectives

DMR was retained by the Minister responsible for the Emergency Measures Act for the purpose of evaluating the 911 Call Taking and Call Dispatch Procedures.

The objectives of this review were to:

♦ Obtain an outside and objective view of the 911 call taking and call dispatch system;

♦ Fulfill the priority goal of the Minister responsible for EMO to review the 911 call taking and call dispatch procedures; and

♦ Provide data and analysis useful for conducting further improvement efforts by the EMO.

The scope of the project included the development of a Performance and Consultation Framework for conducting an evaluation of the 911 system, and an Operations Framework for organizing the issues related to the internal process, procedures and resources.

The project entailed observing and evaluating the internal operation and soliciting feedback from 911 call takers and the external environment including emergency agency dispatchers, responders, municipal and association representatives. Close to 1200 Nova Scotians who called 911 during its first year of operation were surveyed on their experiences and satisfaction with 911.

1.2   Consulting Team

The following roles were established to carry out this work.

- *Mike Myette - System Owner, EMO*
- *Jim Thompson - Project Manager & Principal Management Consultant, DMR Consulting Group Inc.*
- *Bill Collins - Program Evaluation Specialist, Collins Management Consulting Ltd.*
- *Brad Alyward - Associate Management Consultant, DMR Consulting Group Inc.*

1.3   Description of the 911 Program Purpose and Results

The 911 system received legal recognition under Chapter 4 of the Acts of 1992 of Nova Scotia as the Emergency "911" Act. The Act has two main purposes: 1) to establish the number "911" as the primary emergency telephone number for use in the Province and 2) to implement a Province-wide system for the reporting of emergencies to emergency service agencies.

The Act interprets emergency service agencies as: "public service and emergency service agencies operating within the Province including:

- All municipal police forces required to be maintained pursuant to the *Police* Act;

- The Royal Canadian Mounted Police;
- All fire departments organized to serve any area of the Province;
- All ambulance services operating from time to time within the Province; and
- Such other emergency service agencies as may be approved by the Minister".

The Act goes on to define the [911] system as "an emergency telephone system for the reporting of emergencies to emergency service agencies that automatically connects a person dialing the digits 911 to a public safety answering point[1] through telephone network facilities". In effect, the 911 system facilitates an effective linkage between the caller and the appropriate emergency service agency or agencies.

The aim or goal of the 911 system is *"to improve the speed and efficiency with which a Caller in need is placed in contact with the emergency services they require"*[2]. This goal focuses mainly on the 911 call taking process, emphasizing improved speed and efficiency of the linkage between caller and the emergency service agency. The 911 public information documents, such as the 911 web site, reinforces the "process" benefits of the 911 system — "getting help is faster".

We suggest the following mission statement or longer-term goal for the 911 system — to improve public health and safety through the improved coordination of emergency responses in Nova Scotia. This statement reflects the ultimate aim of the program that goes beyond a faster process to one that improves the outcomes of the emergency response system in the province. The 911 call taking system is the initial contact point in Nova Scotia's emergency response system.

1.4   A Performance Framework for the 911 System

Introduction
The 911 Performance Framework is presented in tabular form in this section. The framework provides a simple description of how 911 resources, reach and results — the 3 Rs of performance management — are linked and now these together assist the 911 system in accomplishing its mission.

The following paragraphs elaborate on the information in the table and describe how each element is linked in support of the overall mission for the 911 system. The Framework is best understood when read from right to left, beginning with Results — *what* the 911 system is trying to accomplish in the longer-term (*why* do we have a 911 system) and in the immediate term (*what* do we wish to accomplish with 911). The Reach column indicates *who* benefits from the 911 system and identifies other agencies that are involved in delivering the system. The Resource column indicates *how* the 911 system is to accomplish its mission; this column provides information on both resources and activities.

---

[1] PSAP

[2] Standard Operating Procedures for 911 Call Takers, September 1996. Page 4

911 Results

The Performance Framework identifies two sets of 911 system results:

- *Direct Outcomes* are those that occur immediately or in the short term. The easy to use and remember features of the 911 system along with its universal provincial access ensure that the time is minimized from when a call for an emergency service begins[3] to the initial response by an appropriate agency or agencies. In particular, 911 minimizes the time involved in connecting to the emergency response agency.

- *Ultimate Impacts* are linked to the overall mission of the 911 system. The most important impact of the system lies in its public safety benefits. By improving the time from the call taking to dispatch, the 911 system contributes to improved public safety.

The single performance measure established for 911 by the Province and the PSAPs relates to the operational performance of call taking. This measure is that 90 percent of all calls are to be answered in three rings or less. The consultation sessions and operational assessment investigated the existence of other performance indicators and found that these have not been developed in all PSAP locations. This is discussed in the Operational Review section of the report.

911 Reach

The direct clients of the 911 system in Nova Scotia are the emergency service agencies who receive calls from the 911 call takers within each PSAP. Nova Scotians are the "ultimate" clients or users of the 911 system.

The role of the Province, through the Emergency Measures Organization, has been to integrate the 911 call taking system into the existing dispatch facilities at seven PSAPs throughout Nova Scotia. The PSAPs are under contract to EMO to provide 911 call taking services.

The 911 system operates with two partners or co-deliverers: MT&T and the seven Public Safety Answering Points (PSAPs). These two groups are responsible for operating and managing the 911 system. In practical terms, the complete 911 Framework includes a number of partners or co-deliverers. These include all emergency service agencies as well as other government partners that have a stake in the 911 system. The latter includes, for example, the provincial departments of Housing Municipal and Affairs and Transportation and Public Works. Nova Scotia Municipalities are partners in the 911 system as well.

The 911 system Advisory Committee encompasses the various co-deliverers and stakeholders of the 911 system, including other provincial government departments and emergency response agencies.

---

[3] This process includes the "look-up" time saved by using a single access number rather than several emergency response numbers.

911 Resources

The 911 Framework groups resources into two categories. The first includes *infrastructure* and *human resources*; the second is comprised of the *activities* and *outputs* of the 911 system.

The former category consists of the telephone system in the province, including the 911 switch, the cellular networks, telephones and other telecommunications infrastructure. All personnel involved in delivering the 911 system are included in the resource category.

The activities of the 911 system are straightforward. In addition to answering 911 calls and linking callers to the appropriate emergency response agency, 911 system activities include those undertaken by the Emergency Measures Organization (EMO) as part of its mandate under the 911 Act. This includes contracting to MT&T for various elements of the 911 system such as the telecommunications infrastructure. EMO contracts to MT&T to train call takers on the use of the call taking equipment as well as how to receive and route 911 calls.

911 Call Taking and Call Dispatch Performance Framework

Mission of 911 System: To improve public health and safety through improved call taking procedures for emergency response agencies in Nova Scotia

HOW?	WHO? WHERE?	WHAT do we want?	WHY?
Resources	Reach	Results	
activities/outputs	users/clients/ co-deliverers & beneficiaries	direct outcomes	ultimate impacts
Telecommunications Systems and Equipment Computer systems EMO 911 staff PSAP personnel Technology Provider (MT&T) ⎯⎯⎯⎯ Management of the 911 system Liaison with emergency service agencies and other partners Public Education Coordination of Civic Addressing Call taking and call dispatch Training of call takers	General public Emergency Measures Organization Emergency Responders 1. RCMP 2. Municipal police 3. Fire services 4. Emergency Health [Ambulance] services Municipal governments MT&T Other government agencies with health and public safety mandate	Improved coordination of emergency response Decreased total response time for emergency response Improved/easier method to contact emergency service agencies Improved public confidence in emergency service agencies	Improved health and public safety

2.0 An Integrated Methodology

2.1 Overview of our Methodology

DMR developed an evaluation approach for this assignment that combines a formal evaluation methodology with an operations review. Diagram 1 pictorially describes the elements of our integrative approach.

External View

The external view starts with a description of the purpose and scope of the program to be reviewed. This description is validated and forms the foundation for designing the focus groups and user survey, used later to solicit feedback and analyze outcomes. The description feeds into the performance and consultation framework designs. The performance framework links client "reach" to the "resources" and describes how "results" are measured. In other words;

- What is the intention and audience of the program (***reach***);
- What does the program require to do this (***resources***); and
- How is the program measured for success (***results***).

The consultation framework is a carefully designed structure used for organizing stakeholder feedback, which ensures that the needs, perceptions and experiences of those solicited are collected in the most objective fashion. The consultation framework uses a statistically valid representative sample from as many stakeholder groups as necessary to maximize reliability of the results within the program purpose and scope.
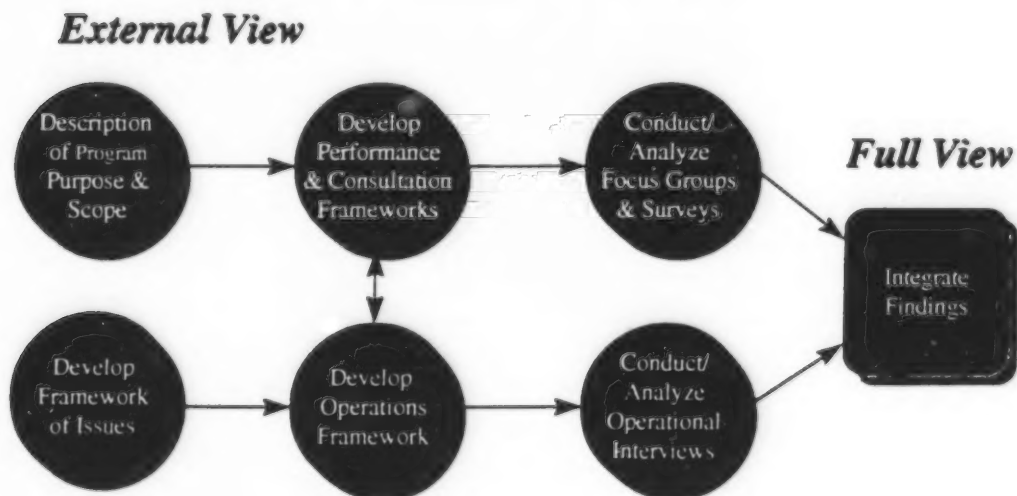
Diagram 1 Showing DMR's methodology

Internal View

The internal view starts with a framework for relating management's issues — including the 911 advisory committee and administration staff — with previously obtained analysis and a description of the operational characteristics of the program. This forms the foundation for the operational framework. The operational framework logically links the issues and operational characteristics together to create a consistent template to conduct operational interviews and observations. This is an important feature of the internal view as it contains the scope of the review and structures the outcomes determined after the data and feedback are analyzed. Unlike the external view, in the internal review, bias is a problem. Our approach, therefore, is more of a validation against current issues than a free flow of perceptions, which would adversely lead to location specific bias in the results.

Full View

The full view is the integration of the internal and external views of the program. The integration is accomplished by ensuring that the internal and external views use the same foundation elements to coordinate the information gathering and analysis. Thus the focus groups, survey and internal operation assessment come together to reveal the overall root cause(s) of inefficiency or ineffectiveness. In this way the internal operations assessment reveals process, organizational and information systems weaknesses that are validated through external unbiased feedback on how well the program is functioning.

Five Major Elements

After initial research of pertinent materials, an initial meeting with the advisory committee and follow-on interviews, the scope of the review was narrowed down to include the review of five major elements of the 911 operation.

The five major elements of the operation reviewed were:

1. Coordination and Communication – how well is information exchanged between the main stakeholders of the system including; users, call takers, dispatchers, responders, managers and administrators;

2. Civic Addressing – to what extent is civic addressing dealt with by the 911 call taking system including; records accuracy, distribution to stakeholders and database consistency;

3. Public Education – how well does the public domain understand the capability and benefit of the 911 system and what is their satisfaction level;

4. Cellular and Mobile Telephones - what is the present capability of dealing with these calls; and

5. Training - how well are call takers prepared for every type of emergency call.

These issues were used as the foundation for a three-part consultation framework described below: the stakeholder framework, the operations framework and the process framework.

The final stage of the review included linking the internal operations results with the external analysis results to create a balanced evaluation of the 911 Call taking and Call Dispatch Procedures.

2.2   Stakeholder Consultation Framework

Our consultation framework encompassed three groups of stakeholders and employed three separate methodologies:

♦   A series of interviews with *internal* stakeholders of 911. These included members of the 911 Advisory Committee as well as other stakeholders and informed observers that we interviewed separately from the focus groups, such as the police chiefs of Truro and the Cape Breton Regional Municipality. We developed an interview guide to help us identify issues for the review. We asked those we interviewed to rank the importance of the issues from their perspective.

♦   A series of 17 focus groups with *internal* stakeholders across Nova Scotia. The focus groups were designed to obtain input from emergency service providers —fire, police and ambulance — as well as dispatchers. We also interviewed 911 call takers as part of this process. The latter groups were consulted mainly through interviews as part of the operational assessment.

♦   A telephone survey of 1144 *external* stakeholders and users of the 911 service. We selected a random sample of persons who had called 911 during the period from July 1, 1997 to June 30, 1998. This comprises the first full year of province wide 911 operation. The caller selection was stratified by PSAP, with statistical representation for callers within each PSAP. A telephone survey was developed and tested, then implemented during October and November 1998. A copy of the survey, along with responses, is provided in Appendix A.

2.3 Operations Framework

All organizations have an underlying set of **policies and processes** that enable them to organize their resources towards a common objective, the goal of the organization. **Policies and processes** are not always apparent to inside users and management of the operation because they are often performed across various agencies or departments of the organization. This fact is true of any organization. In the case of the **911 Call Taking and Call Dispatch** operation, this fact is accentuated by the large number of operators responsible for carrying out procedures that together constitute the entire operation.   Our approach to evaluating just the 911 call taking and call dispatch component of the operation, yet relating the issues from the other critical components of the operation was by creating the **framework for issues relationships**.

The framework for issues relationships allowed us to focus on the specific goal of the 911 call taking and call dispatch operation:

To improve public health and safety through improved call taking procedures for emergency response agencies in Nova Scotia.

A clear and consistent view of how the issues collected from the interviews, research, focus group feedback and observations are brought together is accomplished through the *framework for issues relationships*. The issues framework visually shows how issues are grouped together under major elements of the program and how they relate to the operation. In this case there are 5 major elements-- coordination & communication, training, civic addressing, public education and cellular / mobile telephones. Public education is also an outcome of the success of the operation. Notice the 2-way arrow between the public education and operation bubbles, representing that it is both an element and an indicator of how well the program is functioning.

The operation bubble in the center represents the collection of resources, policies, systems and procedures that function together to provide the activities to carry out the objectives of the organization. Therefore, issues collected around each major element are actually symptoms of an inefficient and ineffective operation. It is important to note here that no organization is perfectly efficient and effective, and thus this is the ongoing objective of management.

- Answer call
- Determine nature of
- Confirm location of
- Route call to emergency
- management
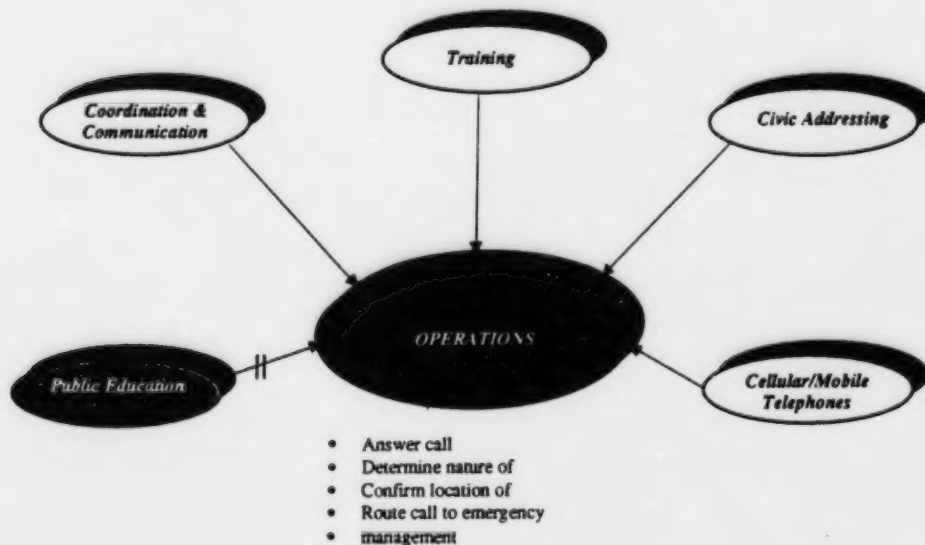
Under the operations bubble are the main processes (bulleted) used within the Public Service Answer Point (PSAP). The main processes and their associated procedures are explained later in the task table used to quantify operational issues.

Finally, notice that there are broken lines on the arrow from the operations bubble to the public education bubble. They represent the principle that operational problems will lead to weaker public understanding of how the system functions and how it is intended to be used. Again, note that this is a framework for issues relationships and **not** a framework to describe what is working well. A conscientious operational evaluation attempts to understand the weaknesses of the operation and its impacts on the success of achieving the organization's goal.

understand the weaknesses of the operation and its impacts on the success of achieving the organization's goal.

2.4   Process Framework

There are several methods that may be employed to describe operational processes including processes mapping, affinity charting and task tables. Process mapping is most appropriate for well-defined operations where there is some consistency across departments or stakeholders in the way they are managed and structured. Hence, this allows for a reasonable comparison and analysis of issues and root causes for symptoms. Affinity charting is most appropriate for quality reviews where many people will be identifying the root causes for key issues. The consistency of the process is less critical to the reliability of the results. This method is typically employed in a workshop setting where there can be interaction between individuals. For our purposes the task table method proved to be most effective. The task table allows for a high level comparison of an organization's main processes and their associated procedures without the need for consistency in management and organizational structure. This supported the widely varying PSAP environments and insured that the unique organizational design of each including governance, human resources, layout and location would not be seen as a factor in determining their ability to fulfill the objectives of the 911 program. In other words, this evaluation would not be focused on comparing PSAPs to each other. This method also accommodated the geographical separation of the PSAPs necessitating individual visits over an extended period of time.

The task table (shown below) includes the main processes and associated procedures taken from the established Standard Operating Procedures. Each of the main processes and associated procedures are evaluated in terms of the major elements. As described earlier, the symptoms occurring in each of the major elements are a measure of the effectiveness and efficiency of the operational processes. Since we are specifically interested in how well the main processes and associated procedures are performing in delivering the objectives of the 911 program, we simply total up the occurrences of symptoms related to each. In this way we understand the capability of the process and associated procedures without biasing each PSAP. Of course, there are advantages to knowing which PSAPs are performing better in relation to the program objectives and thus where internal benchmarks may be established, but this would have been out of scope for this study and we therefore leave that for future consideration of the program managers.

The number of occurrences of symptoms and where they fit are drawn from interview feedback from representative 911 call takers, PSAP managers, dispatchers, responders, administrators, advisory committee members and from focus group feedback from responders, municipal representatives, special interest groups and other responder advisory committees. They are represented in the table as a relative concentration only, since the actual numbers do not provide any additional value. The total number of individuals generating this feedback representative of all areas of Nova Scotia number 84; more than necessary to validate the conclusions. The actual results are described in section 3.3 *Operational assessment.*

Main Process	Procedures	Major Issue Category				
		Coordination & Communication	Civic Addressing	Public Education	Training	Cellular
Answer Call	Abandoned Call procedure					
	No voice call					
	French assistance					
	TDD call	███				
	Call overflow					
Determine Nature of Emergency	Non-emergency call					
	Police					
	Fire			Example		
	Ambulance					
	Multi-emergency response					
Confirm Location of Emergency	Record not found					
	ANI failure					
	Incomplete or Incorrect ALI displayed					
Route Call to Emergency Responder (s)	Multi - agency emergency					
	Route to municipal police					
	Route to RCMP					
	Route to ambulance					
	Route to fire					
Management	Instant playback feature					
	Master voice logger					
	Civic address verification & correction form					
	Trouble reporting					
	News media handling					
	Public education					
	Analysis of system data					
	Operation audit					
	Data & recovery management					
	System management					
	Training					
	Inter PSAP coordination					
	Ops planning					
	Co-mgmt with other					

2.5 Operations Interview Technique

Interviewing may be performed across a continuum from closed-ended to open-ended questioning. Closed-ended questioning is often too rigid for a complex evaluation and forces the interviewee to fit the evaluator's perception of the subject matter as determined by the questions. Open-ended questioning may be too broad to capture a useful response from the interviewee to be used later in analyzing multiple responses from many interviews. For this evaluation we have chosen to combine open and closed ended questions around the *framework for issues relationships* described earlier. The closed-ended questions allowed us to validate understanding of the issues emerging and the open-ended questions facilitated a warmer environment for the interviewees to offer opinions and talk about the issues most important to them. In this way we were

little bias as possible. For example, if a certain interviewee spoke more openly about an issue, then necessarily it became more critical for us to validate it (anonymously) with another interviewee. In addition, interviews may be performed one-to-one, one-to-many or many-to one. To accommodate multiple environments, we did not distinguish interviews into any one pattern; rather we approached each interview on its own basis.

3.0 Analysis and Results

3.1 Focus Groups

The focus groups formed the core of the consultation process with 911 internal stakeholders. As the performance framework indicates, these stakeholders are the direct clients of the 911 call taking and call handling system, as well as partners in the delivery of emergency services in Nova Scotia.

Focus group participants included representatives of the police, fire and ambulance emergency services throughout the province. Additional interviews were undertaken during the review process to capture the views of those providing dispatch services that may not have had the opportunity to participate in the focus groups.

Each focus group was designed to include representation from all these emergency response partners. A focus group model was developed to ensure that the opinions and concerns of participants from different organizations were captured at each meeting. This approach identified common issues of participants, using a model format that identified the strengths and weaknesses of the 911 system. Participants had the opportunity to voice their experiences with the 911 system, as well as its relationship to the overall emergency response system in the province.

Strengths of the 911 System
Focus group participants consistently identified the following features as the core strengths of the 911 system. These strengths focus on the 911 system from the perspective of the 911 caller.

- 911 is a single, easy to remember emergency number that;
- helps the caller access whatever emergency services are required;
- no matter where the caller is located in the province or what time of day the emergency services are required.

Emergency responders identified several important features of the 911 system that support their work in meeting the emergency needs of Nova Scotians. The most important is the ability of the 911 technology to automatically identify the phone number and address of callers. Moreover, by acting as a filter between the caller and the emergency responder, the 911 call taker can increase the efficiency of responders by screening out non-emergency voice calls. Several focus groups identified the latter point as an unanticipated benefit.

Finally, the single access feature of 911 can improve emergency police response in some particular circumstances in rural areas. An example of this occurs when persons requiring emergency services now call 911 instead of the RCMP local detachment or the home of a RCMP member. When 911 is not called, emergency calls may have to be re-directed to the appropriate, available responder, a situation that takes time.

Some 911 strengths may be weaknesses in certain locations or under certain circumstances. The three mostly common features raised in focus groups were the role of 911 in civic addressing, abandoned and no voice calls, and the ability of emergency responders to communicate with other service providers during an emergency situation.

We begin by examining these features from a "strengths" perspective. Focus group participants generally agreed that the 911 system has made a positive contribution to civic addressing, particularly in rural areas. Secondly, participants noted that 911 has significantly improved the ability of emergency responders, especially police, to identify and respond to no voice or abandoned call situations. Thirdly, in some areas, 911 has acted as a catalyst to amalgamate or consolidate fire dispatch services; many focus group participants noted improved service response as a result. Finally, in some jurisdictions, 911 has enhanced communication and cooperation amongst emergency responders. The next section probes these same topics from a "weakness" perspective.

Weaknesses of the 911 System
Focus group participants identified 911 system weaknesses similar to those the Advisory Committee raised in preparing the Terms of Reference for this 911 review. Both groups identified some issues that are more concerned with the overall emergency response system than 911 in particular and are outside the scope of this review.

However, some of these broader "emergency response system" issues are directly linked to the 911 system. This can occur in two ways: the implementation of 911 has affected one or more elements of the previous delivery system, or the 911 system has introduced new unintended elements to the emergency response system. Issues related to civic addressing generally fall into the former category.

The reliance of the 911 system on the caller location database — civic address, street name and location — is a very important consideration. An incomplete or erroneous address database, was identified as an unintended weakness of the 911 system, particularly during the early months of implementation but less so at the present time. Potential problems are minimized by call takers in some PSAPs who ask callers for supplementary information such as landmarks to aid responders in locating the emergency. This practice was not common in the early implementation of 911 when the primary reliance was on the civic address database. However, we understand that the use of supplementary information supplied by the caller is becoming more frequent but does not occur in all PSAPs.

Focus group participants, particularly fire agencies, reported problems with the loss of direct contact with the 911 caller. The verbal relay of civic address information by the 911 call taker to the fire agency is standard practice in most locations. In many instances where volunteer fire departments are involved, the 911 call is verbally handed off by the 911 call taker to a fire dispatch agency, which then contacts the volunteer fire department. There are opportunities for error through misinterpretation or mishearing of civic addresses in these handoff instances. In addition, there may be no direct voice contact between the fire department and the 911 caller. We understand this situation underlies many of the civic address problems experienced by 911 callers.

We categorized the 16 initial issues into five major elements, listed previously in the Operations Framework. The following table summarizes the results of the focus groups with emergency responders. These results have been organized into the five specific elements. The table indicates the frequency with which each item was ranked as one of the three most important weaknesses by a focus group.

Focus Groups Results: The Most Important Weaknesses of 911

ISSUE	
Coordination and Communication:	
• Different protocols at 911, EHS and dispatchers	
• Too many hand-offs of information	
• Too many PSAPs - unnecessarily complicated	
• Responders unable to communicate with each other	
• Protocols that govern deployment of First Response	
• Lack of local knowledge in ambulance dispatch	
• EHS quick to send Fire Departments to MVA's	
Civic Addressing:	
• Numbers not visible - no standardization for signage	
• Problems associated with street naming	
• Problems with the address database	
• Updates to database are very slow	
• Problem with actual numbering system	
• Problems with community names	
Cellular Telephones:	
• Extra steps in process can cause frustration	
• Unable to obtain ANI/ALI data for these calls	
• Dead zones for radio and cell communication	
Public Education:	
• Need to manage public expectations vs. reality	
• Need to explain consequences of abandoned calls	
Training of Call-takers:	
• Call-takers must understand the entire system	
• Should be encouraged to develop more skills	
• 911 call-takers taking too much information	
• Discrepancies on how call-takers handle calls	
• Concern over bilingual capabilities of call-takers	
Other Issues:	
• Problems with private alarm companies	
• Faulty MT&T phone system causing 911 calls	

The focus group "weaknesses" identified by emergency responders concentrated on the related issues of "Coordination and Communication" and "Civic Addressing". Civic addressing issues were the generally rated as the most important issue by the focus group participants. Issues related to abandoned calls were very important to participants as well.

Both the Civic Addressing and Coordination and Communication issues relate to broader implementation and ownership issues. These are discussed in more detail in section 3.3, the Operational Assessment.

The "Abandoned Calls" issue is one of resource allocation and responder safety, primarily for police responders. The ANI-ALI feature of 911, unlike the pre-911 emergency service, allows the PSAP call taker to identify the name and location of the caller. Police agencies have different policies for dealing with abandoned or "no voice" calls. In some cases, police may decide to respond based on whether the call is from a

residence or public phone, for example. Several police agencies have attempted to identify businesses or others who can see a public telephone and in the case of 911 calls from the public phone, will call the nearby business in an attempt to validate the emergency call.

The RCMP policy is to respond to abandoned or no voice calls. RCMP members in the focus groups identified these kinds of calls as one of their most important concerns with 911 in Nova Scotia. This is both a resource and a safety issue as members find themselves having to respond rapidly to "no-voice" calls that are widely distributed throughout rural areas.

3.2 A Telephone Survey of 911 Callers

The 911 User Survey was designed to obtain an external perspective on the performance of the 911 call taking and call handling system. A total of 1144 callers to 911 during its first year of operation were randomly selected from across Nova Scotia and questioned by telephone on their experiences with and perceptions of the 911 system. Survey respondents were also asked several broad questions concerning the overall emergency response system in the province.

As the Performance Framework notes, the direct clients of the 911 system are the province's emergency response agencies. The callers to 911, the general public, are the direct clients of these emergency agencies and indirect clients of the 911 system. However, it is important to determine if 911 is enabling the emergency agencies to meet the needs of Nova Scotians. Callers do have direct contact and interaction with the 911 system, and this survey was meant to assess the level of service from the caller's perspective. The survey tested the level of public confidence in the system as the central link between their emergency needs and the emergency organizations.

This section presents the major findings of the survey. Details on the individual questions are provided in Appendix A.

Satisfaction with 911 and the Emergency Response System

Nova Scotians who called 911 during its first year are very pleased with the service they received. More than nine out of ten persons (93 percent) responding to the survey indicated "yes" when asked if the 911 system met their expectations. The approval rating was consistently high across the province, as the following chart indicates. The highest approval rating was for the Kentville PSAP — 100 percent of those called felt the 911 system met their expectations. The Halifax Regional Municipality 911 PSAP received the lowest rating — 82 percent. Moreover, 13 percent of HRM 911 callers reported the system did not meet their expectations while five percent were not sure if the system met their expectations.

Only 20 persons elaborated on their reasons why 911 failed to meet their expectations; 80 persons provided elaboration on why the overall emergency response system did not meet their expectations. Responses to both questions were a blend of emergency response and 911 system issues. Timeliness of response — it was too slow — and civic addressing problems that delayed emergency response were the two most common types of problems identified with respect to the overall emergency system. The 20 callers offering comments on the 911 call taking system focused on two issues:

common types of problems identified with respect to the overall emergency system. The 20 callers offering comments on the 911 call taking system focused on two issues: interaction with the dispatcher and difficulties in having their call answered by the 911 call taker.

Figure 1: Expectations of 911 Met by PSAP
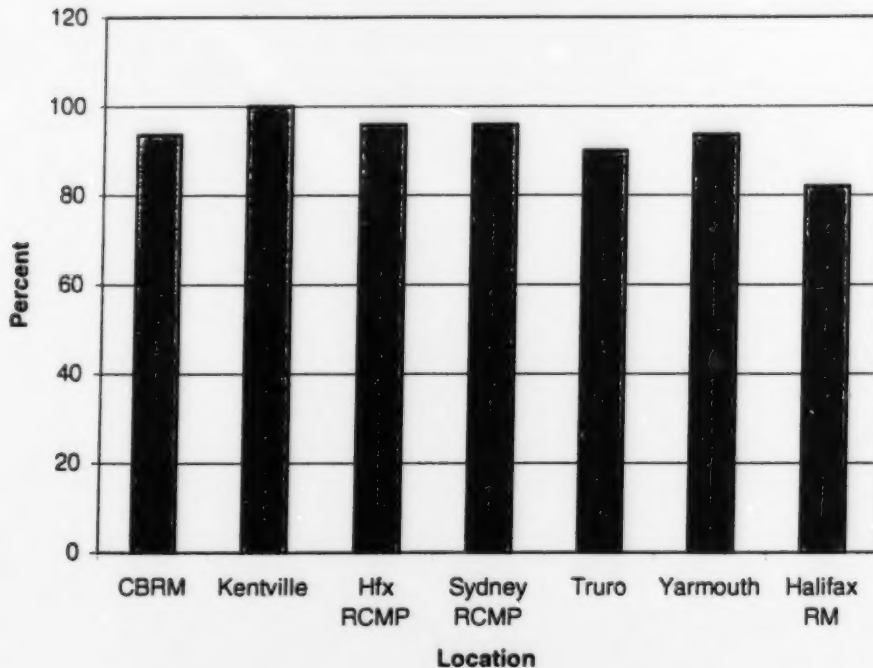
Those called provided a variety of responses in identifying the most helpful part of 911. The most common of these mirrored the "strengths" of 911 identified in the focus groups with emergency responders — a single, easy to remember number for accessing emergency services throughout Nova Scotia. Many callers remarked that they appreciate no longer having to remember different emergency numbers.

Callers surveyed frequently noted the professionalism of the call takers as an important feature of the 911 system. This professionalism included calming the caller by giving advice, displaying confidence and reassurance to the caller.

The 911 survey included four specific indicators of the quality of the 911 call taking and handling service. Callers were asked to rate the level of service they received on a level of satisfaction scale, from a "very unsatisfactory" score of "1" to an "excellent" score of "5". The average score for each of the four service categories ranged from 4.68 out of a possible "5" for the sensitivity of the call taker to the caller's particular situation, to an average 4.8 rating on the courtesy of the call taker. The following figure indicates the ratings for each type of service.

Figure 2: Satisfaction with 911 Services
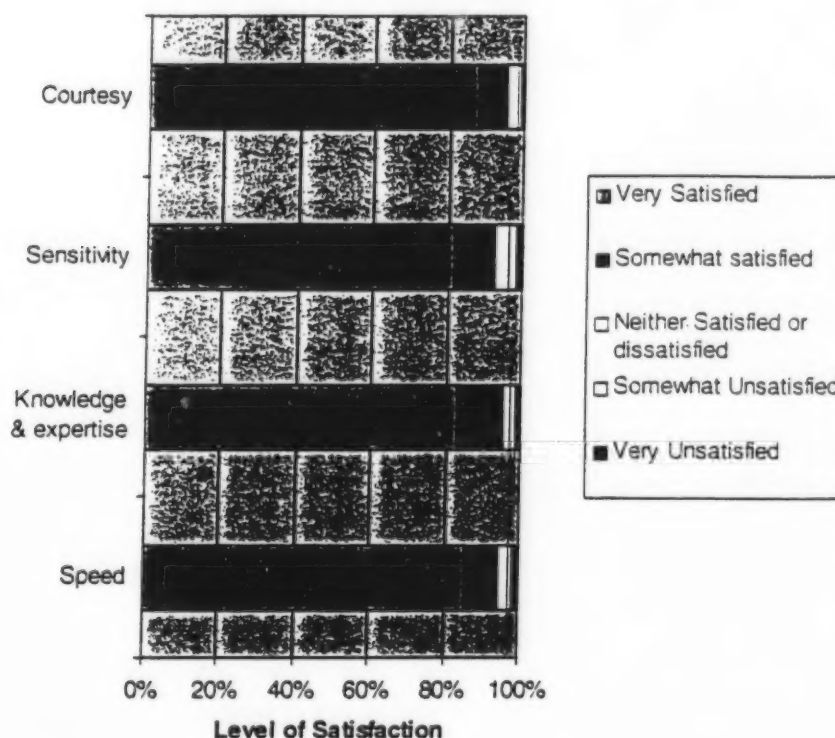
Caller level of satisfaction with the voice-related services — the knowledge, expertise, sensitivity and courtesy of the call taker — was high in all cases although there was a statistically significant difference in response by PSAP. The Kentville PSAP was consistently rated the highest for these services and the Truro PSAP the lowest.

The analysis found no statistically significant differences in caller satisfaction according to the gender, age or urban/rural location of the caller.

Two additional questions assessed the level of caller satisfaction with 911 call taking and handling. First, callers were asked about their level of confidence with the ability of the 911 system to meet their emergency needs. The second question asked callers if they would recommend that other Nova Scotians call 911 in an emergency.

In both questions, the level of satisfaction and confidence was very high. This confidence did not differ by PSAP or the age, gender or location of the 911 caller.

Close to 88 percent of callers surveyed indicated that they were "very confident" in the ability of 911 to meet their emergency needs, should they have the need to call 911 again. On the same 1-5 satisfaction scale, this rating amounts to a score of 4.8 out of 5. As the following chart indicates, 97 percent of callers would recommend other Nova Scotians call 911 in an emergency.

Figure 3: Would 911 Callers Recommend 911 to Others in an Emergency
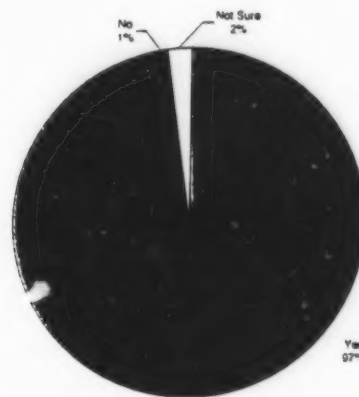
Public Awareness of 911 Function

The role of 911 call taking and call handling within the overall Nova Scotia emergency response system was questioned by the emergency responder focus groups and in the 911 Advisory Committee interviews. The ability of Nova Scotians to differentiate between the narrowly defined "911 system" and the entire system is part of this issue.

These internal 911 stakeholders believe that 911 callers typically expect the 911 system to encompass the entire emergency response system, from the point of dialing 911 to delivering emergency services to the caller's door. This incorrect external perspective generates a level of service expectations beyond the scope and capability of 911 call taking and emergency responders. Moreover, when problems in delivering emergency services arise, callers may misdirect their complaints or dissatisfaction.

The survey questionnaire included a question designed to determine if callers differentiated between 911 call taking and call handling, and the overall Nova Scotia emergency response system. Close to 80 percent of respondents (78 percent) associate 911 with the complete range of emergency response service, from taking an emergency call to notifying the appropriate emergency agency and actually providing the emergency response service. These callers believe that 911 provides the agency dispatch and response.

Callers from the Halifax Regional Municipality, Truro and Yarmouth PSAPs are more likely to recognize 911 as a call taking and call handling service only; callers from the PSAPs in Kentville and Cape Breton Regional Municipality are most likely to view 911 as a full service emergency response system.

The survey analysis found no differences in response by gender or urban / rural location of the 911 caller. There were statistically significant differences in response by age. As the following chart indicates, callers between the ages of 21 and 65 were 23 percent more likely to identify 911 as a call taking and handling service rather than a full-service

emergency response system. Those older than age 65 were three times more likely to
see 911 as a full service system than strictly call taking and handling.
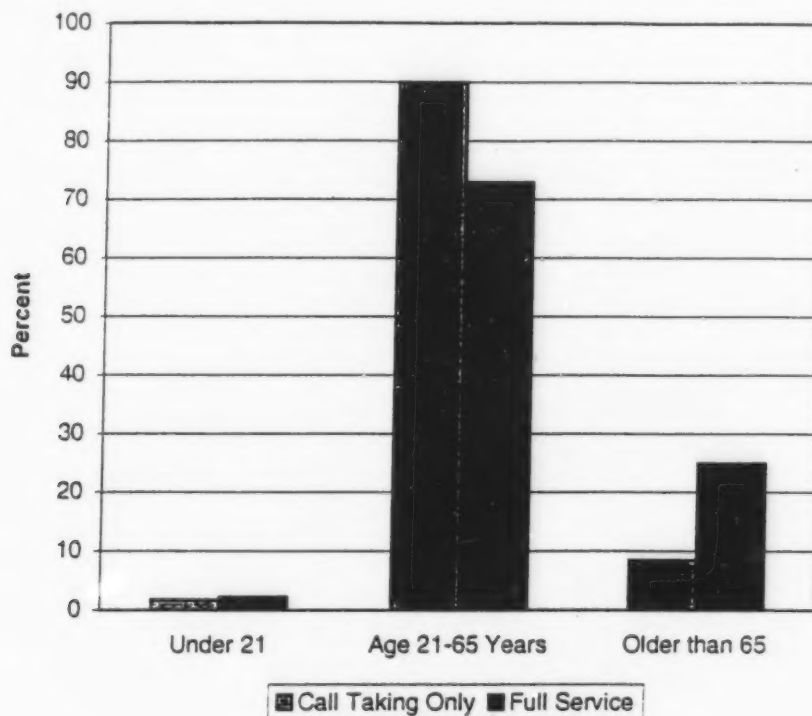
Figure 4: Awareness of 911 Intent by Age of Caller

Satisfaction with the Overall Emergency Response System
The previous discussion examined the knowledge of 911 callers in differentiating 911
from the overall emergency response system. We also asked survey respondents about
their satisfaction with the overall system.

About 89 percent of those we surveyed stated that "the emergency response system, not
to be confused with 911 specifically", met their expectations. In comparison, 93 percent
of those we surveyed said that the 911 call handling system met their expectations.
Respondents who were confused about the difference between 911 and the entire
system, discussed earlier, were similarly unclear about the different focus of these two
questions.
These approval rates change if those who were able to identify the correct role of 911
are included in the analysis: 83 percent indicated the emergency response system met
their expectations compared to an 88 percent rating for 911 call taking and handling.
Factors such as the location of the PSAP, the gender and age of the 911 caller and
whether or not they live in an urban or rural location do not have a statistically important
impact on the responses.

Some 13 percent of those correctly identifying the role of 911 reported that the emergency response system did not meet their expectations. The major reasons for this response were the slow response times of emergency responders. Callers reported having to call several times to obtain service. Dispatches to incorrect locations were noted as well.

The following table lists the problems as reported by callers surveyed.

Problem Reported	Number
911 Call Taking Related	
911 had different set of road maps than the municipality, ambulance got lost	2
Call taker kept asking questions but caller had shortness of breath and couldn't respond. dispatcher kept asking questions, wasting time	1
911 caller called about a fire down the street but the fire dept. arrived at the caller's address	1
911 Dispatcher didn't know which fire department to send	1
Emergency Dispatch & Delivery Related	
F.D. took a long time	1
Fire truck kept going past the apartment	1
Fire truck was slow and then they had to send for two more trucks	1
Ambulance took too long	4
Police were too slow	2
Police weren't contacted	1
It took three calls to police before they responded	1
RCMP called back three times asking more questions before they got there	1
Sent an ambulance from Yarmouth to Dartmouth, took a long time	1
System was slow	1
The page wasn't clear about location	1
The police took a long time; however there was a lot of traffic	1
The police were too slow	1
Took an hour for police to arrive	1
Other/inconclusive source of problem	
Not an emergency	1
Took too long	2
Very slow	1
Total	**27**

Civic Addressing

Civic addressing was consistently identified as a major element in the 911 review. This element was raised in interviews by the 911 Advisory Committee and other 911 stakeholders. It was cited as an important problem by the external stakeholder focus groups as well. From an emergency responder perspective, the main issues are inadequate posting of civic addresses, the lack of standardization in signage so that signs are clearly visible to responders and occasional inconsistencies in numbering. We also heard of instances where callers to 911 disagreed with their address maintained in the 911 database.

The 911 survey asked callers three separate questions about their address. The results are provided in the following chart. These type of questions often elicit a "socially acceptable response" from callers who do not want to be seen as being ignorant of a social norm or failing to behave in a correct manner. Having noted this point, the responses do indicate the need to increase awareness of the importance of signage.

The figure indicates high awareness by callers of their address, but declining awareness of the importance of posting a visible sign for emergency response purposes. As the figure indicates, close to 18 percent of callers (and likely more, if "socially correct response" is considered) believe that their civic address is not visible. About 12 percent of callers are "not sure" if their address is visible, demonstrating a clear need for standards and public education on signage.

Figure 5: Civic Addressing
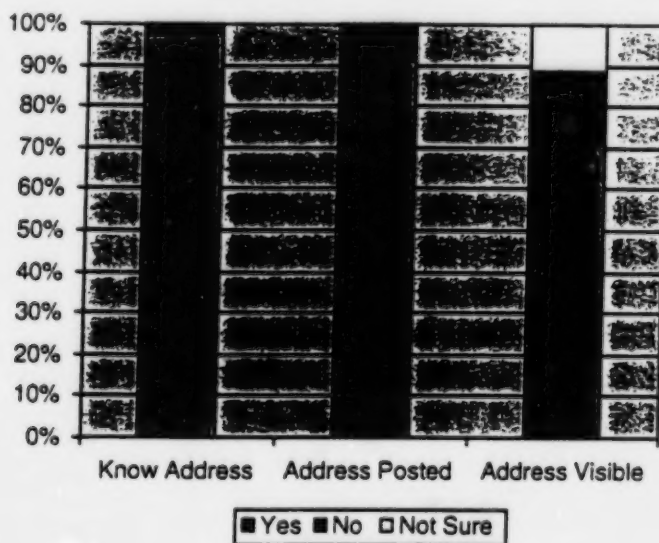
Cell Phone Use
The operators at MT&T intercept all calls placed to 911 from cell phones. An operator must subsequently transfer the call to the appropriate 911 PSAP. The data capture methodology employed by MT&T does not identify cell callers on the 911 Caller database from which we chose the 911 survey sample. However, a brief series of questions on cell phone use was included, with the expectation that some 911 callers may also have called 911 on another occasion using a cell phone.

Some 18 percent of those we interviewed use a cell phone. Of these, only 14 percent (26 persons) were able to correctly indicate how the 911 system handles cellular calls. The majority of callers — 60 percent — stated they did not know how the system worked, while the remaining 26 percent were either not sure or responded incorrectly.

Twenty percent of the approximately 200 persons with cell phones indicated that they had used their cell phone to call 911 for an emergency call at some time. We asked the callers to rate their satisfaction with the level of service they received, using a format similar to that for regular 911 emergency calls. The results, shown in the following chart, indicate a significantly lower level of satisfaction than for regular 911 calls.

Figure 6: Caller Satisfaction with Cell Phone Characteristics
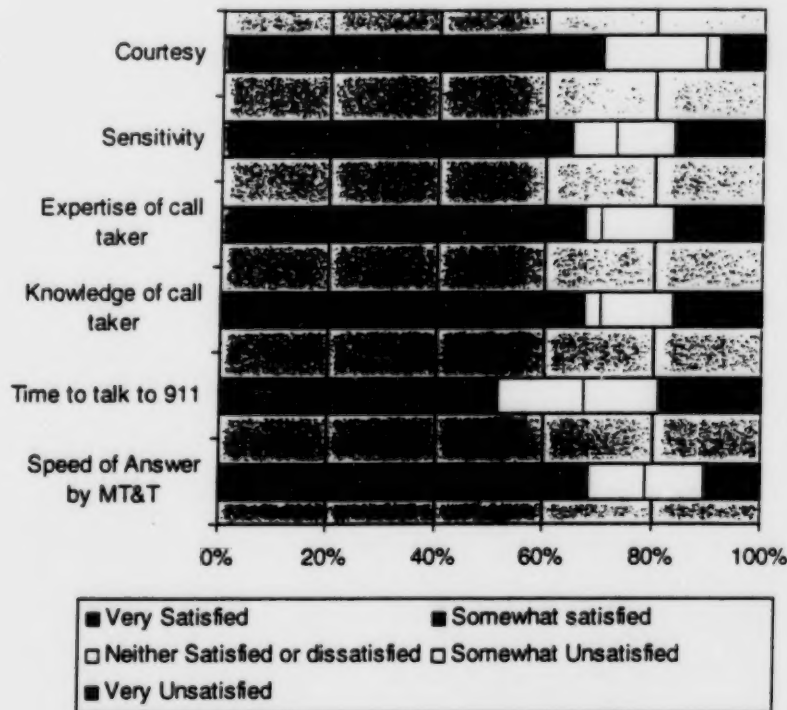
Traditional Emergency Numbers

During the review process, it became apparent that Nova Scotians were still using the traditional seven digit local numbers of emergency responders to access emergency services from police, fire and ambulance. In some cases, these numbers are single access numbers for these agencies that serve both administrative and emergency purposes; in other locations such as Truro, there are separate numbers for administrative and emergency services. This situation occurs even though 911 is in place.

This practice appears to vary across the province and within emergency responders. In many cases when 911 was introduced, agencies chose to keep active the old emergency number. This number was to be used for administrative purposes or non-emergency calls. Some emergency responders at our focus groups told us the previous number was kept to ensure that emergency calls were not missed when callers chose to call the emergency agency directly rather than 911.

We understand that it is no longer possible to call a seven-digit number for ambulance service anywhere in Nova Scotia; these numbers have been changed to call directly to Emergency Health Services. In the Halifax Regional Municipality, the former four-digit emergency numbers are no longer in service. In the Cape Breton Regional Municipality, callers have to call 911 to access non-emergency numbers due to a printing error in the 1998 telephone directory.

This survey attempted to examine the reason for the use of the pre-911 emergency numbers. We asked callers to 911 if they had also called the seven digit number of the emergency responders in the past year. Some 16 percent reported that they had called this previous number. Three quarters of these calls were to police.

Responses to "why did you call the previous seven digit number" indicated an uncertainty about when to call 911 as well as an uncertainty about what constitutes an emergency. In fact, 61 percent of those who called the previous emergency number reported to us that their calls were not emergency calls. About half of the 30 persons who reported some other reason for calling the traditional number reported that they were told by either the police or the 911 call taker to use the traditional number. It is implicit in this response that the call was not an emergency call and that the traditional number refers to an administrative number.

Other reasons for calling the "traditional emergency" number include:

• forgot she could have called 911
• unsure of severity of emergency
• not a "life or death emergency"
• wasn't an emergency ·
• 911 takes too long; she drove to hospital faster than ambulance made it to her house
• didn't think 911 was fully operational yet
• was more comfortable using the old system with people she knew were working
• has an unpublished number and didn't want to be identified
• [traditional] number was listed in event guides
• with 911 you can get too many emergency vehicles
• [traditional] number is part of dispatch system
• police specified that they should be called directly
• had been told to use the traditional number (3 callers)
• was told by 911 dispatcher to call F.D. directly
• was told not to use 911 for police
• was told to use that number by 911 dispatcher
• was told to use the traditional number by 911
• was told to use the traditional number because it was not a real emergency
• was told to use traditional number by 911 dispatcher

It is important to note that several of these reasons for using the traditional number are not operationally correct. However, these responses reflect uncertainty and/or an inadequate understanding of the 911 system by these callers.

Persons using the traditional number generally found the service to be about the same as 911 — 58 percent responded "about the same"— and 29 percent reported 911 call taking and call handling service to be better than the previous system, based on their experience.

3.3 Operations Assessment

The results of the operational assessment are summarized using **the *framework for issues relationships*** and the ***process framework***. Under each major cause we summarized the feedback from interviews, focus groups, research and our own observations from site tours. The explanation of our findings for each element follows. The following diagram represents our conclusions pictorially.

Coordination & Communication

⇒ Too many PSAP/ dispatch points have created inconsistencies in the service level
⇒ Many issues were not 911 call taking issues
⇒ Different protocols exist on the call dispatch side for different responders
⇒ Too many hand-offs have created duplicate steps and misinformation
⇒ Lack of knowledge of the EHS dispatch protocols

Training

⇒ There are inconsistencies in the quality and quantity of information transferred
⇒ The inconsistency in defining and handling "non-traditional" emergencies has increased the reliance on local knowledge and customized procedures

Civic Addressing

⇒ Information displayed on the terminal is at times inconsistent with what is posted in the field leading to decreased efficiency of hand-offs of information
⇒ Where the civic addresses are not current and updates are done slowly
⇒ Inconsistent database records (naming) cause confusion leading to internal inefficiency

OPERATIONS

Public Education

⇒ The roll-out slowed after the awareness level was communicated and has led to continued reliance on the preexisting 7 digit emergency numbers
⇒ The awareness level is strong but the understanding of the usage is not strong enough
⇒ The continued publication of preexisting 7-digit emergency numbers in various telephone directories has diluted the acceptance, as well as, the overall effective coverage of the 911 emergency number
⇒ Negative press due to lack of buy-in from various stakeholders of the program has decreased the efficiency and effectiveness of the overall program

⇒ There is no universally employed CAD system throughout the province that is fully compatible with the 911 systems and other dispatch systems
⇒ There is no analysis of data/performance history consistently applied across all PSAPs which would otherwise improve overall understanding of how improvement in the operation may be realized
⇒ There are few qualitative performance measures thus making it difficult to determine how well the operation is functioning today in terms of effectiveness for internal stakeholders
⇒ There are overlapping roles/responsibilities between call takers and dispatchers leading to organizational ineffectiveness and inefficiencies
⇒ The linkages of 911/police/PSAPs/others are diverse and thereby difficult to manage effectively
⇒ Varying standards between call taking and dispatch coordination lead to inconsistent service levels across the province
⇒ The large use of the preexisting 7-digit numbers still used in rural NS has minimized the acceptance and effectiveness of using the 911 process

Cellular/Mobile Telephones

⇒ No system presently exists that will identify the location of cellular calls
⇒ Extra coordination of incoming calls from the MT&T operator, who is not always aware of the correct PSAP to hand the caller off to, delays the overall response time
⇒ An extra step is required creating inefficiency in the system
⇒ Poor signage on highways forces 911 call takers to have local knowledge

Communication & Coordination:

Communication & Coordination for the PSAP involves interpreting and understanding the nature of the emergency and how it should be handled. This includes non-emergency calls. The guidelines for achieving this effectively are set down by the protocols established in the Standard Operating Procedures (SOP) and supplements issued by the EMO from time to time. In all cases we found the PSAPs generally

dispatch, we found that PSAPs had extended their call dispatch procedures to accommodate special dispatch considerations unique to their location. Also, in several PSAPs, the 911 call taking and dispatch functions are merged. In all cases, medical calls are routed to another dispatch facility operated by the Emergency Health Services division (EHS) of the provincial department of health.

In many cases we observed more than one answer point for emergency call taking and dispatch. In these cases, additional coordination was required by the 911 call taker. In few cases we found that multiple emergency call answer points, including 911 PSAPs, caused confusion in dispatching responders to the scene of an emergency, either in the timing of arrival or nature of emergency. These observations led us to conclude that:

⇒ Too many PSAP / dispatch points have created inconsistencies in the service level;
⇒ Many issues were not 911 call taking issues;
⇒ Different protocols exist on the call dispatch side for different responders;
⇒ Too many hand-offs have created duplicate steps and misinformation; and
⇒ Lack of knowledge of the EHS dispatch protocols.

Civic Addressing:
Civic addressing provides an important functionality to the 911 system. A common record for every building number, street and resident or business is kept accurate through efforts of the EMO, the municipal units and Maritime Tel & Tel Ltd. The 911 system draws on these records to instantaneously identify the location where the caller is calling from, based on the number they are calling from. The database and systems that provides this functionality include civic address database, automatic number identification (ANI), automatic location identification (ALI) and responder databases. In addition there is the auto master street address guide (MSAG) system that provides an instant look-up capability for 911 call takers for determining locations for callers where no records are found or displayed. There is also a manual backup MSAG. Responsibility for maintaining the accuracy of civic address records is a joint duty of the Emergency Measures Organization and municipal units. The success of the system is critically linked to these records. For this reason, we investigated the impact of civic addressing symptoms and issues on the functioning of the 911 call taking and call dispatch operation.

In all cases we found that 911 call takers, knowledgeable of the local street naming history and the location of well known landmarks, significantly improved the ability to identify the specific location where the emergency responder should go. In few cases where this knowledge was missing and the local knowledge was missing, incorrect dispatches were made. This lead to further confusion either because the responder's dispatch did not have the Computer Aided Dispatch (CAD) system showing automatically the information transferred from the 911 terminal or the civic address was located on the border of two adjoining territories. In other cases where the Auto-MSAG was used, naming conventions were different than actual addresses posted. These observations have led us to conclude that:

⇒ Information displayed on the terminal is at times inconsistent with what is posted in the field leading to decreased efficiency of hand-offs of information;
⇒ Where the civic addresses are not current and updates are done slowly; and

⇒   Inconsistent database records (naming) cause confusion leading to internal inefficiency.

Training:

Training for 911 call takers is provided by MT&T. This training covers the basic 911 call taking and call handling protocol and procedures. These procedures are documented in the "Standard Operating Procedures for 911 Call Takers" guide produced in September 1996. This guide was used as a reference for our investigation. The procedures described in this guide include:

- Responsibilities of the 911 Call Taker
- Telephone Procedures
  - general
  - -listening
  - -interrogation skills
- General Call Taking Procedures
  - the 911 call
  - -standard protocols for answering 911 calls
  - -non-emergency administrative information calls
  - -redundant call procedure
  - -calls requiring multi-agency response
  - -abandoned call procedure
  - -no voice calls
  - -911 calls with records not found, ALI failure, or an incorrect ALI displayed
  - -callers requiring assistance in French
  - -911 voice recording facilities and procedures
  - -civic address verification and correction form
  - -the hearing impaired and the deaf (TDD procedures)
- Call Overflow Routing Plan
- 911 trouble reporting
- News Media
- Agencies of Priority in an Emergency
- Telephone Service Designations
- 911 Glossary of Terms
- The Master Street Address Guide & ESN Reference

In all cases we found that call takers were knowledgeable of the basic procedures to be followed upon receiving a 911 call. Also, in all cases, we found that the MSAG/ESN guide was located close to the call takers position and was used as a backup if the ALI information was not displayed or there was a failure in the Auto-MSAG system to properly produce a location. A visual inspection indicated that the basic procedures document, referenced above, was not located at the call taking position. Instead, a "quick flip" style of reference tool was employed at many PSAP locations, providing procedural information in the event of more complex emergency requirements. In most cases we found that there was confusion over how to deal with the non-traditional type emergencies not explicitly outlined in the SOP document. "Non-traditional" emergencies not explicitly described in the SOP document were not consistently dealt with across all PSAPs. In all PSAPs there were additional call taking and handling procedures developed pertaining to the unique requirements of their location and geographical coverage. Also, in many locations we found differences in the detail of information

gathered from the caller prior to hand-off to the emergency dispatch responder. The most significant occurrence was the gathering of information for the EHS dispatch operation. EHS dispatchers reported various levels of redundancy or inconsistency in the information relayed to them. Other responders also reported discrepancies in how different call takers handled calls. These observations led us to conclude that:

⇒   There are inconsistencies in the quality and quantity of information transferred; and
⇒   The inconsistency in defining and handling "non-traditional" emergencies has increased the reliance on local knowledge and customized procedures.

Cellular / Mobile Telephones:

Cellular and mobile telephone usage has been increasing dramatically throughout the province of Nova Scotia. Cellular and mobile phones do not have automatic location identification (ALI) within the telephone systems network. This causes problems for 911 call takers, as they must attempt to determine the location, validity and nature of the caller's emergency.

In all cases we found that cellular and mobile originating calls required special procedures. Call takers will receive the call through the MT&T operator. An extra step was required for the caller to recap the information given to the MT&T operator. In some cases we found that call takers needed local knowledge of geographical landmarks and highway routes in order to identify the closest emergency responder to hand the 911 caller off to. In few cases we found that the MT&T operator dispatched the call to the incorrect PSAP. These observations have led us to conclude that:

⇒   No system presently exists that will identify the location of cellular calls;
⇒   Extra coordination of incoming calls from the MT&T operator, who is not always aware of the correct PSAP to hand the caller off to, delays the overall response time;
⇒   An extra step is required creating inefficiency in the system; and
⇒   Poor signage on highways forces 911 call takers to have local knowledge.

Public Education:

Public education is critical to the functioning of the 911 system. The way the public uses the 911 system today has been determined to a large extent by the messages they received from the public education events surrounding the initial rollout. This rollout emphasized an "awareness" of the simplicity of the using the 911 number for all emergency needs. In our framework, public education is both an input to and an output from the 911 operation. The percentage of those that use the 911 system versus the percentage of those that continue to use the preexisting 7-digit emergency numbers, still in place, is a measure of the awareness and confidence that people have in using the 911 number. In other cases we found that the preexisting 7-digit emergency numbers were still being published, leading to further confusion over the use of the 911 system. This confidence is significantly influenced through public education campaigns.

In all cases we found that the public understood the use of 911. In many cases we also found that the preexisting 7-digit emergency numbers were still being used. This observation was not unique to any one area. Much of this 7-digit number use is related to the public's understanding of where the 911 call takers are located and how directly they are in control of the responder that arrives at their door. Most PSAPs stated that in

cases where people knew an emergency responder personally they were apt to call them directly in the event of an emergency. In these cases we found that the preexisting 7-digit number was used. We also found in all cases that the use of the 911 number was increasing in use, largely due to an extended awareness from public media events, such as the Swissair disaster. These observations have led us to conclude that:

⇒ The roll-out slowed after the awareness level was communicated and has led to continued reliance on the preexisting 7 digit emergency numbers;

⇒ The awareness level is strong but the understanding of the usage is not strong enough;

⇒ The continued publication of preexisting 7-digit emergency numbers in various telephone directories has diluted the acceptance, as well as, the overall effective coverage of the 911 emergency number; and

⇒ Negative press due to lack of buy-in from various stakeholders of the program has decreased the efficiency and effectiveness of the overall program.

Operations

The operation of the 911 system includes management, process, organization and information system components. As this was not an information systems review of the 911 operation, our emphasis was placed on the efficiency and effectiveness of the overall operation and not on specific PSAP operations. To this point we looked at the consistency in the application of processes, procedures and organizational resources. Information systems were looked at in relation to their consistency of use and not in terms of their specific functioning as standalone environments. The *process framework* was employed to accomplish this task.

The *process framework* incorporated the occurrences of symptoms related to each major element used throughout the stakeholder consultation framework and operations assessment. Keeping the elements the same throughout the study insured that the scope of the evaluation would be consistent and allow us to match the external findings with the internal findings. This balanced review is the only way to clearly say that by not following a procedure (or by following a procedure if such is the case) there is a negative or positive outcome in meeting the 911 program objectives.

Management

In all cases we found that there was inconsistency in how PSAPs were managed and their resulting operational performance level. In most cases, there was minimal amount of analysis performed on call statistics apart from that which was specifically requested by administrative overseers of the program. Also in most cases, we found that internal reporting was not performed in any consistent manner across PSAPs and that numerical statistics were not directly comparable. In few cases we found that management were directly engaged in continuous improvement activities for the PSAP and associated operations through the implementation of additional training, logistics management and quality reviews. Some PSAPs had instituted regular external satisfaction surveys with recent 911 users. In all cases we found that management had an equivalent responsibility in managing the 911 call takers, although each PSAP had varying responsibility and accountability levels placed on their 911 call takers. Admittedly, much of this was due to the combination of other non- 911 call taker duties unique to each PSAP.

Process

In terms of process and procedures, we found in all cases that the 911 call taking procedures were universally applied. We also found that, in all cases, that 911 call routing procedures were not universally applied. In these cases we observed that differing responsibilities across 911 call takers was an indication of process inconsistency. This inconsistency often led to poor linkages among federal, provincial, municipal and volunteer responders. In many cases we found that process controls including cost and variance were unknown or not clear. In few cases, PSAP management conscientiously applied historical trend analysis on call volumes and attempted to improve response times (efficiency) and accurate responder selection (effectiveness) through process intervention. In no case did we observe a concerted effort to increase the percentage of 911 calls to total calls (including the use of the preexisting 7 digit emergency numbers); rather they were more concerned with handling all emergencies regardless of their origination. Finally, in many cases, we found process confusion related to multiple answer points (PSAPs and other) within a close geographical area. In these cases, cellular calls arriving at the answer point may have required a transfer to another answer point in order to be handled.

Organization
The 911 organization consists of seven PSAPs that are managed and controlled by four distinct areas representing the federal, provincial, municipal and private sectors. Therefore the level of ownership existing across the entire operation is segmented based on location and sector. There is one governing body responsible for overseeing the 911 program and this resides with the Emergency Measures Organization, resident within the Nova Scotia Government. The EMO has powers to affect 911 call taking and call dispatch operations but no power to affect responder dispatch, PSAP administrative management or responder agency activities. As such there is an incomplete governing process for the entire 911 emergency response organization.

In all cases we found that there was a good understanding of what the 911 program intention was and how the 911 system was proposed to operate. In all cases we found that there were varying levels of understanding of which organization was responsible for improvements to the 911 operation. In some cases, the EMO was held accountable for issues beyond their control. As well, in some cases the emergency responders were held accountable for issues beyond their control. In all cases we found that local municipal officials, fire and police responders were supportive of the benefits of the 911 system, although there were some cases where it was felt that the 911 program was not earning it's intended credibility. The result of this can be shown in the continued use of the preexisting 7-digit emergency number in these locations.

On an individual basis, in many cases we found that there were overlapping responsibilities of call takers and dispatchers. In these cases, it was difficult to separate the role of the 911 call taker and the dispatcher. In fact, separating these roles was of no importance to the proper functioning of the 911 operation or the dispatch operation, but was required only for maintaining the scope of this study. However, in the case of EHS specifically, it was observed that there were varying degrees of information collected, some redundant and some unnecessary for EHS procedures to be fulfilled.

Information Systems
Information systems include the 911 terminals, address database, Auto-MSAG and telephone switching and terminal equipment. The ability of these systems to integrate with the other systems including the computer aided dispatch (CAD), GIS, EHS, police & fire dispatch systems and on-site database systems is a measure of the integrity of the

911 system databases in providing accurate and timely information to the right user. A failure in one component of the system can cause incorrect or delayed information getting to the user.

The entire 911 process may be thought of as a 3 step process including, call taking, emergency dispatch and delivery of emergency response. In this context, the 911 call taking system architecture fulfills the objectives described in the SOP document for the 911 call taker. However, there is less integration of the 911 system with the dispatch, emergency response delivery and administrative systems.

In all cases we found that the 911 terminal, database and telephone switching equipment was integrated and worked to specification. In most cases, where CAD was employed, we found inconsistencies in the integrity of the information shared from the 911 terminal when transferred to the CAD system. The reasons for this were not investigated and were beyond the scope of this study. In some cases the CAD system was not yet employed due to cost constraints of acquiring the technology. In these cases the 911 call taker would transfer information to the responder dispatcher who would then re-key the information into their screen. Finally, in all cases we found that there was not a consistent procedure, universally employed, to backup caller information for long term analysis. All PSAP managers employed their own data collection techniques for this purpose. There is an administration system (Connor backup tape drives) intended for this procedure but it is not user friendly and there was minimal use of it by PSAP managers. It did, however, provide useful administrative data for the 911 program manager.

Performance data for the volumes of calls, speed of answer, length and time of call and nature of call are collected within the system. These are measures of the efficiency of the operation. In all cases we found that this quantitative data was used and provided important indications of 911 system performance. In all cases the performance across these measures was very high and consistent. Qualitative data includes stakeholder and user perception. In some cases we found user satisfaction surveys employed to indicate qualitative performance. In these cases, users were asked to answer several key questions indicating their satisfaction with their recent experience with a 911 call taker. In most cases, users were very satisfied. This supports the more comprehensive user survey performed for this study. (see earlier discussion) However, in all cases we found there was not a standard set of qualitative measures employed such as dispatcher satisfaction, emergency responder satisfaction and call taker satisfaction with the 911 operation. These measures are indicative of the effectiveness of the operation in achieving its goals for internal stakeholders. In these cases performance data was not consistently captured or analyzed.

The observations from the management, processes, organizational and systems review have led us to conclude that:

⇒   There is no universally employed CAD system throughout the province that is fully compatible with the 911 systems and other dispatch systems;

⇒   There is no analysis of data / performance history consistently applied across all PSAPs which would otherwise improve overall understanding of how improvement in the operation may be realized;

⇒ There are few qualitative performance measures thus making it difficult to determine how well the operation is functioning today in terms of effectiveness for internal stakeholders;

⇒ There are overlapping roles / responsibilities between call takers and dispatchers leading to organizational ineffectiveness and inefficiencies;

⇒ The linkages of 911 / police / PSAPs / others are diverse and thereby difficult to manage effectively;

⇒ Varying standards between call taking and dispatch coordination lead to inconsistent service levels across the province; and

⇒ The large use of the preexisting 7-digit numbers still used in rural NS has minimized the acceptance and effectiveness of using the 911 process.

Process Framework showing areas of issue concentration per procedure

Main Process	Procedures	Coordination & Communication	Civic Addressing	Public Education	Training	Cellular
			Major Issue Category			
Answer Call	Abandoned Call procedure			■		■
	No voice call				■	■
	French assistance				■	■
	TDD call	■				
	Call overflow	■				
Determine Nature of Emergency	Non-emergency call	■				
	Police	■				
	Fire	■				
	Ambulance	■				
	Multi-emergency response	■				
Confirm Location of Emergency	Record not found		■			
	ANI failure		■			■
	Incomplete or incorrect ALI displayed	■	■			■
Route Call to Emergency Responder (s)	Multi - agency emergency	■	■			
	Route to municipal police	■	■			
	Route to RCMP	■	■			
	Route to ambulance	■				
	Route to fire	■				
Management	Instant playback feature					
	Master voice logger					
	Civic address verification & correction form		■			
	Trouble reporting	■				■
	News media handling					
	Public education		■			
	Analysis of system data				■	
	Operation audit	■				
	Data & recovery management					
	System management	■			■	
	Training	■				
	Inter PSAP coordination	■				■
	Ops planning				■	
	Co-mgmt with other	■				

As can be seen, the heaviest concentration of issues occurred within the coordination and communication element of the 911 operation. The processes most affected were "*Determine Nature of Emergency*" and "*Route Call to Emergency Responder(s)*". We have seen this throughout the external feedback as well.

4.0 Conclusions

Internal View

Overall, the 911 call taking and call dispatch process is not integrated and this had led to questionable cost inefficiency, a high degree of process variability and lack of a consistent management approach. It *is important to clarify* that the choice of having a separate 911 call taking operation and separate dispatch operation was a conscious decision in the original implementation plan. That being said, this internal state *has not affected* the level of service enjoyed by the public. It has, in some cases, caused confusion in the internal coordination of handling emergencies. The cost of this confusion should not be overlooked, as it is a direct indication of a cross- functional process that suffers from a high degree of variability. Here we see this variability occurring as a result of the 911 call taking, emergency dispatch and delivery of emergency response being managed and operated by various departments, organizations and levels of government. A highly varying process will have unpredictable outcomes that may have serious unpredictable ramifications. It is important to identify that the level of quality we are comparing the process to here is high, representing the critical mission of the emergency response system.

The management, process, organizational and information systems review has identified problems with the overall 911 emergency response operation. Specifically, the communication and coordination element of the operation suffers from inefficiency due to multiple management styles, multiple process owners and multiple emergency responder groups, most of which are organized under separate administrative bodies. To the public, this fact is largely unknown and they simply see the emergency response system as integrated as one. (see external conclusions for more detail) In this instance the internal inefficiency and ineffectiveness of the overall emergency response operation is *not a threat to the public's usage of the system*. It is, however, a justifiable concern for the 911 program manager, emergency responders and PSAP managers who are engaged in continual improvements in the system to meet the public's expectation. It is also a key indicator of how well the 911 operation is performing. That is, how many residents feel comfortable using the 911 number versus the use of the preexisting 7-digit emergency numbers still published and in use around the province?

The advisory group, PSAP managers, representative call takers / dispatchers and responders identified these internal weaknesses during the interviewing and focus group sessions. They were validated against the external view.

External View

Callers to 911

The review interviewed a randomly selected telephone sample of close to 1200 persons who called 911 during its first year of province-wide operation. The telephone survey found that those who have used the 911 call taking and handing service are very satisfied with the 911 system. Some 93 percent of those interviewed reported that the 911 system met their expectations. Very positive responses to four separate satisfaction indicators — the courtesy of the 911 call taker, the sensitivity of the call taker to their

situation, the knowledge and expertise of the 911 call taker and the speed with which their call was answered — strengthen this finding. Based on their experiences, 97 percent of those interviewed would recommend other Nova Scotians call 911 in an emergency.

Callers were readily able to identify the strengths of the 911 system. Simply put, the strength of 911 is that it is a single, easy to remember number for accessing emergency services throughout Nova Scotia.

Those who were randomly contacted for the survey identified very few instances of *direct* problems with 911. The major difficulties reported by callers are related to the interaction of the 911 service with the delivery of the emergency service. Most of those we interviewed (78 percent) incorrectly associate 911 with the complete range of emergency response service, from taking an emergency call to notifying the appropriate emergency agency and actually providing the emergency response. This perception has a direct linkage to the five major elements of the review, specifically communication and coordination, and public education.

Civic addressing issues were related to problems with the 911 database and the delivery of emergency response services by agencies. About 18 percent of those we interviewed believe their civic address is not visible; another 12 percent were not certain about the visibility of their address. This finding points to a clear need for public education and signage standards for civic addressing.

Emergency Responders

Emergency response agencies clearly know the difference between 911 and the overall emergency response system. From a "strengths" perspective, focus group participants see 911 as *a single, easy to remember emergency number that helps the caller access whatever emergency services are required no matter where the caller is located in the province or what time of day the emergency services are required.* Responders see a number of positive benefits to the 911 system and believe it is an important and indispensable asset to emergency responders in Nova Scotia. Emergency responders generally agree that the 911 service has improved emergency response in Nova Scotia.

However, there have been some growing pains in the first year of operation of the 911 service. Participants in the 17 focus groups held around the province raised issues linked to the five major elements examined in the review. These concentrated on communication and coordination, civic addressing, training, cell phones and public education. The issues are similar to those identified by the 911 Advisory Group.

Some 911 strengths may be weaknesses in certain locations or under certain circumstances. The three most common features raised in focus groups were the role of 911 in civic addressing, abandoned and no voice calls, and the ability of emergency responders to communicate with other service providers during an emergency situation

These issues typically have a geographic and agency specific character. Some issues such as road naming have generally been resolved over the past year in most locations. Others, such as the posting of addresses, still require work. Many of the issues raised may be seen as outside the scope of the narrowly defined 911 call taking and handling service. Such issues are typically part of the overall emergency response system.

However, in our view, there is a causal linkage between these issues and the 911 call taking system.

The views of these stakeholders confirm and validate the findings from the operational assessment. The Operational Assessment section of the report examines these in more detail.

5.0   Appendices

Appendix A: Survey Questionnaire & Results

Review of 911 Call Taking & Handling Procedures

911 User Questionnaire

	PSAP	Caller Number	Interview Date
Date of 911 Call		Sample #	Interviewer
Callback Times			

Introduction

Hello, I am calling to get your feedback on the operation of the 911 emergency response system in Nova Scotia. My name is [Name] and I work for the DMR Consulting Group. We have been hired by the Province of Nova Scotia. We are telephoning a random sample of Nova Scotians who have called 911 over the past year.

I would like to speak to the person at this number who called 911 on [DATE] at [TIME]. Is that person available now?

IF YES, PROCEED WITH INTERVIEW: re-read opening paragraph, then the following paragraph.

IF NO, ASK: when is a better time to call this person? [DATE and TIME] Confirm that you will call back at this time.

CONTINUE:

This survey is about the *services* you received from 911, not the reason for your call.   I do not know the reason why you called 911.   Your participation is completely voluntary and confidential. This interview will take about 10 minutes. Is this OK with you? Are you OK with talking about the call?

IF YES, PROCEED WITH INTERVIEW.

IF NO, THANK AND TERMINATE THE CALL

Program Description

1. I'm going to read two descriptions and would like to know which one best describes your understanding of the 911 system: (Read list and circle One only: Rotate list)

The 911 system provides a single telephone number to report emergencies. A 911 call-taker connects the caller who has an emergency to the appropriate agency such as police, fire or ambulance. 911 does not include actually providing the emergency response service.	21.9 %
The 911 system provides a single telephone number for reporting emergencies and includes **all** the steps beginning with taking an emergency call to notifying the appropriate police, fire or ambulance emergency service and actually providing the emergency response service.	78.1%

In Nova Scotia, the 911 system is the [first / second] description. The difference is that 911 does not include agency dispatch or response.

I would like to talk to you about your experiences with the 911 system when you called on [ABOVE DATE].

2. Was there an emergency when you called 911?

    Yes   83.5%   No   11.3%   Not Sure   5.2%

3. Was your call for police, fire or ambulance? ✔ ALL THAT APPLY; IF RESPONDENT VOLUNTEERS NATURE OF EMERGENCY, WRITE IN

1. Police	26.5%
2. Fire	18.5%
3. Ambulance	56.3%
4. Some other agency (WRITE IN RESPONSE)	1.4%
5. None 6 not an emergency call	8.0%

RESPONSE

4. Did the 911 person who answered your call -- the 911 call taker -- explain what would happen with your call (e.g. connect you to emergency response agency)?

    Yes   65.7%   No   10.4%   Not Sure   23.9%

5. Did the call taker connect you by phone to the emergency response agency that you thought you needed?

Yes   83.7%   No   16.3%

6. IF NO, ASK: Do you know why you weren't connected to the agency? WRITE IN RESPONSE:

7. Which emergency response agency or agencies were you connected to? (✔ ALL THAT APPLY)

1. Police	27.2%
2. Fire	22.6%
3. Ambulance	55.5%
4. Some other agency (WRITE IN RESPONSE)	1.1%
5. None - not an emergency	6.9%

8. How satisfied were you with that call to 911? Please rate it from 1 to 5, with "1" being very unsatisfied and "5" being excellent or very satisfied with the service. (READ LIST; ONE RATING PER TOPIC.)

Category	Very unsatisfied	Somewhat unsatisfied	Neither satisfied or dissatisfied	Somewhat satisfied	Very Satisfied	N/A
Circle one	1	2	3	4	5	9

1. The speed with which your call was answered.	4.8/5
1. The knowledge and expertise of the call taker in connecting you with the right emergency agency (fire, police, ambulance)	4.7/5
2. The sensitivity of the call taker to your particular emergency situation	4.7/5
3. The courtesy of the call taker.	4.8/5

9. About how many times have you called 911 over the past year?   1.0 time(s) (median response)

Other Emergency Numbers

10. In some areas of Nova Scotia, the previous seven digit emergency numbers for police, fire and ambulance are still in service. Have you used any of these numbers in the past year?

Yes   16.2%   NO: SKIP TO QUESTION 15   83.8%

11. IF YES, ASK: For which emergency agencies? (DO NOT READ LIST; CHECK ALL THAT APPLY)

1. Police	76.5%
2. Fire	10.9%
3. Ambulance	14.2%

4. Some other type of call	4.4%

12. Why did you use this phone number instead of 911? (Do NOT READ LIST; CHECK ALL THAT APPLY)

1. Traditional number	18.0%
2. Don't trust / little confidence in 911	2.7%
3. Unsure of 911 process	3.2%
4. Personal contact with call taker at traditional number	8.2%
5. Concerned with how well 911 will meet my needs	1.1%
6. Not an emergency call	61.2%
7. Some other reason (specify)	21.3%

13. Did you use the seven-digit number before or after the time you'd made the call to 911 that we're talking about now?

Before this 911 call   29.7%   After this 911 call   63.0%   Before & After 7.3%

14. Based on your overall experience, how well does 911 call handling compare to the previous system? Would you say 911 is (READ SCALE AND CIRCLE ONE ONLY)

Category	Worse than the previous system	About the same	Better than the previous system
	12.0%	58.6%	29.3%

Cell Phone Use

15. Do you use a cell phone?

Yes   17.8%   No: SKIP TO QUESTION 20   82.2%

16. IF YES ASK: Do you know how the 911 system handles cellular calls? (Respondent has to make reference to operator intervention and routing of call for "Yes")

Yes 13.7%   No 60.0%   Not sure 22.6%   Said "YES" but incorrect 3.7%

17. Have you ever used your cell phone to make a 911 emergency call?

Yes 20.1%   No: SKIP TO QUESTION 20   79.9%

19. I'd like to know your satisfaction with that call. I'm going to read a list of several characteristics and for each one I read, please rate it from 1 to 5, with "1" being very unsatisfied and "5" being excellent or

very satisfied. (READ SCALE THEN EACH CHARACTERISTIC; ENTER A SINGLE SCORE FOR EACH ITEM)

Category	Very unsatisfied	Somewhat unsatisfied	Neither satisfied or dissatisfied	Somewhat satisfied	Very Satisfied
	1	2	3	4	5

1. The speed with which your call was answered by the MT&T operator.	3.9/5
2. The length of time before you were able to talk to a 911 call-taker.	3.2/5
3. The knowledge of the 911 cal! taker in connecting you with the right emergency agency (fire, police, ambulance).	3.8/5
4. The overall expertise of the 911 call taker in meeting your needs.	3.7/5
5. The sensitivity or understanding of the 911 call taker to your particular emergency situation.	3.7/5
6. The courtesy of the 911 call taker.	4.1/5

20. When you called 911 on your cell phone, did the MT&T telephone operator who answered your call explain that they were going to connect you with 911?

 Yes 51.4%   No 21.6%   Not Sure 27.0%

Civic Addressing

21. Do you know your civic address?

 Yes 97.2%   No 2.8%

22. Do you have your address posted on your home or driveway?

 Yes 90.8%   No 9.2%

23. Are you confident that the number is visible, day or night, should emergency responders -- fire, police or ambulance -- need to find you?

 Yes 70.8%   No 17.5%   Not Sure 11.6%

Summary

24. Overall, did the emergency response system, not to be confused with 911 specifically, meet your expectations?

 Yes 88.7%   No 8.0%   Not Sure 3.3%

25. IF NO. ASK: Why didn't it meet your expectations? (WRITE IN RESPONSE)

26. Did the 911 call handling system meet your expectations?

      Yes 93.0%   No 4.7%   Not Sure 2.3%

27. IF NO. ASK: Why didn't it meet your expectations? (WRITE IN RESPONSE)

28. What would you say is the best or most helpful part of 911 system?

29. Again, based on your own experiences, what is the least satisfactory part of the 911 system?

30. Should you have need to call 911 again, how confident are you in the ability of the 911 system to meet your emergency needs? Would you be (READ SCALE AND WRITE IN ONE RESPONSE ONLY)

Category	Very unconfident	Somewhat unconfident	Neither	Somewhat confident	Very Confident	Average Response
	1	2	3	4	5	4.8/5

32. Would you recommend other Nova Scotian's call 911 in an emergency?

      Yes 97.3%   No 1.0%   Not Sure 1.7%

Demographic Profile

Finally, I'd like to ask you a few questions about yourself. These are for statistical purposes only and will not be used to identify you in any way.

33. Gender (do not ask)   Male 29.8%   Female 70.2%

34. Which of the following categories best describes your age now? (READ LIST AND CHECK ONE ONLY)

      Under 21 years: 2.0%   21-65 years: 76.1%   Older than 65 years: 21.9%

35. In what community do you live? Write in _____

36. ASK ONLY IF NOT KNOWN TO INTERVIEWER: Is this an Urban 45.4%   Rural 54.6%
                                         location?

Thank you very much for your time. The results of this study will be available later this year; you may obtain a copy by calling Stacey Brown at the NS Emergency Measures Organization at 902.424.5620 or 1.800.388.3911.

Other Responses

Location of respondents by PSAP

Cape Breton Regional Municipality	12.4%
Kentville	4.6%
Halifax RCMP	26.3%
Sydney RCMP	11.0%
Truro	19.7%
Yarmouth	17.2%
Halifax Regional Municipality	8.7%

Appendix B: Focus Group Guide

Review of 9-1-1 Call Taking & Dispatch Procedures
Guide for Stakeholder Consultation

Purpose of the Focus Group Consultations

The stakeholder consultations are designed to obtain the opinions and perceptions of the 911 system in Nova Scotia. The focus of the consultations will be the 911 call taking and dispatch procedures. The consultations will take the form of focus groups, implemented as facilitated group discussions using the following questions as a guide.

Introduction

The facilitator welcomes the participants and explains the purpose of the focus group session. Rules for participation for the session will be presented. These include confidentiality of the participants, the role of the facilitator and process for participating – all persons will be given an equal opportunity to contribute to the discussions.

Questions

The session will begin by the facilitator defining the 911 system. Participants will then introduce themselves, along with their relationship or functional linkage to the 911 system. The following questions will then be asked of the participants.

1. What are the main benefits of the 911 system from your perspective and experience? Why? (*Write on 3x5 cards, then record on flip charts*)

2. What are the main weaknesses or areas for improvement of the 911 system? Why? (*Write on 3x5 cards, then record on flip charts*)

3. Of the benefits, which are most important? Why? (*Use a voting allocation process: participants are asked to allocate points to a short list of benefits; the most important issue gets the most points. This will be done using flip charts and 3x5 cards.*)

4. Of the areas for improvement, which are most important? Why? (*Use the same process as for benefits.*)

5. How can you tell if the 911 system is successful? What would you define as success?

Overall, how would you rate the 911 call taking and dispatch system? (1-5 scale).

Appendix C: Summary of Focus Group Consultations

911 PROGRAM REVIEW - FOCUS GROUP ATTENDANCE REPORT

Focus Group	Fire Departments		Police Departments		Municipal Councils		RCMP		EHS	
	Invited	Attended	Invited	Attended	Invited	Attended	Invited	Attended	Invited	Attended
Kentville	2	1	2	1	1	0	1	3	1	0
Truro	2	1	1	0	1	0	1	0	1	0
Sydney	2	0	2	0	1	1	1	0	1	1
Baddeck	2	1	0	0	0	0	1	1	1	3
Cheticamp	2	1	0	0	0	0	1	1	1	2
Port Hawkesbury	4	4	0	0	1	0	1	0	1	2
New Glasgow	2	0	2	0	1	1	1	1	1	0
Yarmouth	2	1	0	0	1	0	1	0	1	0
Digby	2	2	1	0	1	1	1	1	1	0
Sheet Harbour	2	1	0	0	0	0	1	1	1	0
Bridgewater	2	1	2	2	1	1	1	2	1	3
Amherst	2	0	2	1	2	0	1	2	1	1
Hubbards	2	0	0	0	0	0	1	0	1	0
Halifax	3	1	1	1	1	0	1	0	1	0
SUB-TOTALS:	**31**	**14**	**13**	**5**	**11**	**4**	**14**	**12**	**14**	**12**
Interviews		12		3		0		0		0
Total Invited to Focus Groups:				83						
Total Attendance at Focus Groups:				47						
Interviews (Service Responders/Dispatch Groups):				18						
Written Responses Received:				5						
Advisory Committee Members Interviewed:				14						

Appendix D: List of Stakeholders and Study Participants

Advisory Committee Members:

Name:	Representing:
Dennis Kelley	Policing Services
Grant Lingley	Emergency Health Services - DOH
Mike Renaud	Nova Star
Robert Cormier	Fire Marshall
Ross Wickwire	Natural Resources
Ken Simpson	NS Municipalities
Cathy Keizer	MT&T - 911 Training and Support Manager
Chief Dave MacKinnon	NS Police Chiefs Association
Brad Fay	Housing/Municipal Affairs
David Ray Smith	Transportation and Public Works
Todd Brown	Technology and Science Secretariat
Norv Lipsett	RCMP
Mike Myette	911 Group
Jane McNeil	911 Group
Stacy Brown	911 Group

PSAP Managers:

Pat Delaney	Halifax RCMP
Eric Simms	Truro RCMP
Kathleen McNally	Valley Communications
Bob MacVay	CBRM
Joe Romard	Sydney RCMP
Ken Jacquard	Yarmouth RCMP
Guy Uddenberg	HRM

Focus Groups:

Focus Group	Name	Representing
Kentville	Mark Mander	Kentville Police Department
	Shawn Ripley	Kentville Fire Department
		RCMP New Minas
		RCMP New Minas
		RCMP Windsor
Truro	Ross Doyle	Truro Fire Department
	Bill MacLeod	Truro Fire Department
Interview	Ken MacLean	Truro Police Department
Sydney	Debbie Rudderham	CBRM
	Lawrence Briand	EHS/EMC

Interview	Edgar MacLeod	CBRM Police Department
Baddeck	Michael Towle	RCMP Baddeck
	Gerald Dunlop	EMC Baddeck
	Eddie Keeling	Baddeck Fire Dept
	Charles Cook	Baddeck Fire Dept
	Richard Aube(?)	EMC Baddeck
	Greg Hann	EMC Baddeck
Cheticamp	Lorraine LeBlanc	EMC Cheticamp
	Joe Muise	EMC Cheticamp
	Derek Merry	Cheticamp Fire Department
	Chester AuCoin	Cheticamp Fire Department
	Gerard Chasles	Cheticamp RCMP
Port Hawkesbury	Donald D'Entremont	Guysborough Fire Department
	Lauchie Armstrong	EMC Port Hawkesbury
	Rhonda Greene	EMC Port Hawkesbury
	Ashley MacLeod	Port Hastings Fire Department
	Paul Shears	West Bay Road Fire Department
	George Meisner	Port Hawkesbury Fire Department
	Pat MacKinnon	Port Hawkesbury Fire Department
New Glasgow	Kevin Hallay	New Glasgow RCMP
	Norman Paris	New Glasgow Municipality
Yarmouth	Ken Kelly	Yarmouth Fire Department
Digby	Jean Brittain	Digby Municipality
	Charles Trifts	Weymouth Fire Department
	Vaughn Van Tassell	Digby Fire Department
	Cliff Thompson	Digby RCMP
Sheet Harbour	Anthony Farris	Sheet Harbour Fire Department
	Cathy Purcell	Sheet Harbour Fire Department
	Erwin Beaver	Sheet Harbour Fire Department
	Scott Manning	Sheet Harbour RCMP
Bridgewater	Harold Zwanepol	Bridgewater EMC
	David Douglas	Bridgewater EMC
	Kevin Davison	Bridgewater EMC
	Reid Whynot	Bridgewater Fire Department
	John Collyer	Bridgewater Police Department
	Carroll Publicover	Deputy Mayor - Bridgewater
	Brent Crowhurst	Lunenburg/Mahone Bay Police Department
	Ken McKinnon	RCMP Queens
	Alex Young	RCMP Lunenburg
Amherst	Jeff Fraser	EMC
	Wayne Latimer	RCMP Pugwash
	John Hastey	RCMP Amherst
	David Lepper	Amherst Police Department
Halifax	Mike Eddy	HRM Fire Commissioner's Office
	Terry Bourgeois	HRM Fire Commissioner's Office

	Bob Barss	HRM Police Department
	Tony Burbridge	HRM Police Department
Hfx. Fire Advisory Committee	Tom Hubley	Zone 1
	Edgar Kerr	Zone 1
	Ken Boutlier	Zone 2
	Michael Richardson	Zone 2
	Tim Flemming (regrets: Bob Ruggles)	Zone 3
	Peter Hawkins	Zone 4
	Steve Hobson	Zone 4
	Ambrose Smith	Zone 5
	Jim Stone	Zone 5
	Gary Duff	Zone 6
	Robert Murphy	Zone 6
	Bernard Turpin	Chair
	Sandy Beagan	From Chief Directors Office
	Mike Eddy	From Chief Directors Office
	Don Day	Councillor Hendsbee Office
	Bill Mosher	From Composite Chiefs
	Also attending were 15 additional observers but names were not collected in the minutes	
Fire Officers' Association of NS	Greg Clark - President	Attended Association meeting held at Alma, Nova Scotia on Sunday, December 6, 1998.

Individual Interviews:

Chief Ken MacLean   Truro Police Department
Chief Edgar MacLeod   CBRM Police Department

Telephone Interviews:

Chief Kenneth Cook   Middleton Police Department
Chief Philip Timmons   Pleasant Bay Fire Department
Rick Hutchinson   Hubbards Fire Department
Chief Jonathan Wort   Colchester County Fire Fighters' Association
Scott Hawkes   North Queen's Fire Department
Phil Rafuse   Colchester Dispatch
Representative   Digby Dispatch
Allison Landry   Amherst Dispatch
Chief Ronald Colpitts   Stewiacke Fire Department
Chief Jim Gracie   Sydney Fire Department
Chief John Begin   Inverness Fire Department
Chief George Bedford   Pictou Fire Department